

Chapter 4 Review

8. Determine if $(x-2)$ is a factor of the polynomial $f(x)=x^3-2x^2+4x-5$. State which theorems help you to determine this. *factor theorem, Remainder theorem.*

*$C=2$ $f(2)=2^3-2\cdot 2^2+4\cdot 2-5=8-8+8-5=3\neq 0$
the remainder of division of $f(x)$ by $x-2$ is 3, so $x-2$ is
not a factor of $f(x)$*

9. Give an example of a rational function that has a hole at $x=2$.

$y = \frac{(x-2)(x+3)}{x-2} = \frac{x^2+x-6}{x-2}$ \rightarrow the factor can be cancelled out.

10. Graph the following functions using domain, intercepts, and asymptotes:

a. $y = \frac{(3x-12)(x-2)}{(x-1)(x+5)}$

b. $y = \frac{(x^2-9)}{x-3}$

c. $y = \frac{3x^2+4}{x-2}$

Watch the videos on the wiki.

11. Solve the following inequality graphically:

$f(x) \geq g(x)$

$(-\infty, 0.5] \cup [1.5, 3.75]$

